Arizona Department of Health Services
Bureau of Emergency Medical Services and Trauma System and
Emergency Medical Services for Children Program
Injury Fact Sheet Series

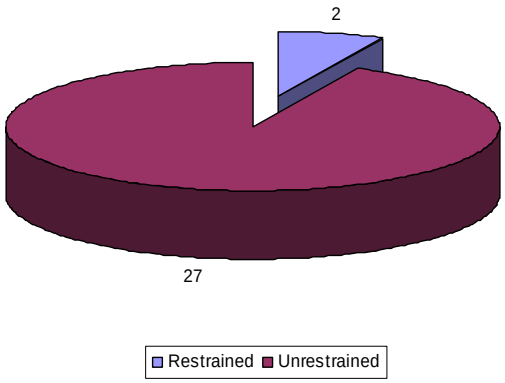
Lack of appropriate vehicle restraint use contributed to the deaths of 56 children in Arizona in 2005

Recent findings by the Arizona State Trauma Registry (ASTR) and the Arizona Child Fatality Review Program point to the importance of using seatbelts and car seats. The new tool, ASTR, operated by the Bureau of EMS and Trauma System is used by state trauma centers to collect data on Arizonans that are injured and transported to a participating hospital. According to the 2005 data report, **children (aged 0-17) that are not appropriately restrained in car seats, booster seats or seat belts are 13 times more likely to die in a car crash and are more likely to be severely injured and spend more time in the hospital Intensive Care Unit. In addition, Hispanic and Native American children buckle up less often than White Non-Hispanic children.**

The report documents injuries for 1,377 children involved in motor vehicle crashes that were entered into the ASTR by the seven trauma centers and four non-trauma centers. In addition, the 2005 report from the Arizona Child Fatality Review Program[i], documents that the 82 children killed in car crashes that had appropriate restraints available, only 14 were using them. Recent data dramatically demonstrates the effectiveness of occupant protection systems. A report from The National Highway Traffic Safety Administration cites the following statistics: car seats reduce the risk of death by 54% to 71%, booster seats provide a 59% reduction in the likelihood of injury and seat/lap belts provide a 50% to 65% reduction in moderate to critical injury[ii]. The failure to safely restrain children in cars impacts everyone in Arizona. Hospital charges are higher for unrestrained children, they spend more time in the intensive care unit and the families of these children are less likely to be able to pay the cost of medical care.[iii]

Figure 1

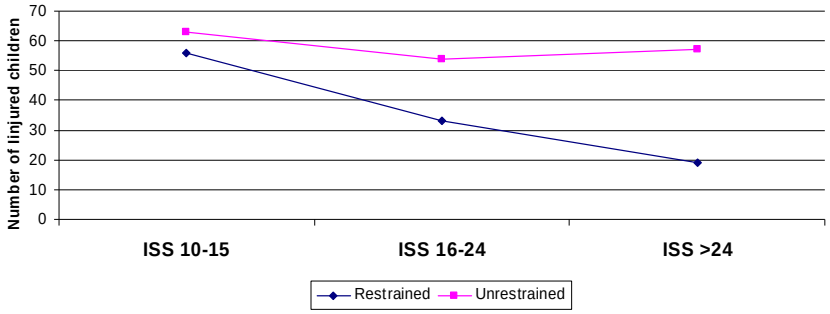
Figure 1: Deaths of restrained and unrestrained children involved in car crashes ASTR 2005



Injuries are classified by Injury Severity Scoring (ISS), a scientific method for measuring the impact of injury. The higher the ISS number, the greater the severity of injury. Major injury is usually categorized as an ISS $\geq$ 16, though in young children, the elderly and those with underlying illness, ISS scores less than 16 can signal major injury. Children that were not restrained are clearly more likely to suffer more devastating injuries, resulting in longer recovery and a greater likelihood of long-term or permanent deficits. The Arizona Department of Health Services reports the average cost associated with a hospital stay for a trauma (injury) diagnosis to be over $ 53,000 for a stay of 4.8 days[iv]. On average, unrestrained children stay in the Intensive Care Unit 73% longer than kids that were appropriately restrained.

Figure 2

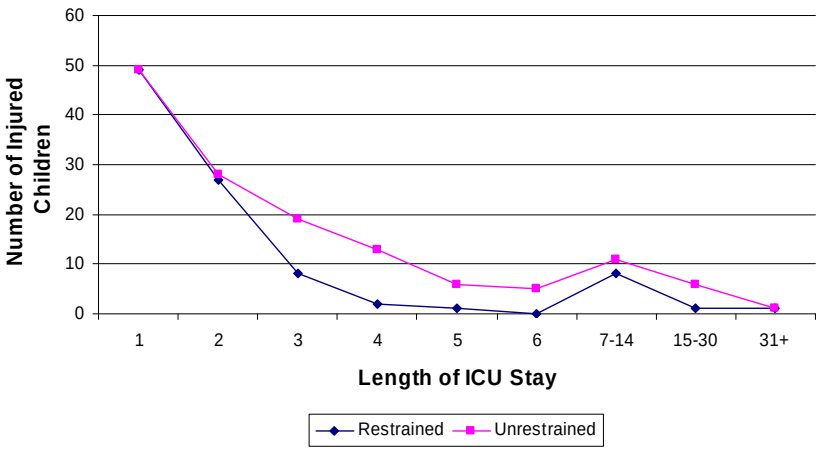
Figure 2: Comparison of injury severity between restrained and unrestrained children involved in motor vehicle crashes ASTR 2005



Beyond the direct costs associated with hospitalization are other long-term family and societal costs. According to a recent publication from the US Department Health Resources and Services Administration, "More than 16% of unintentional injuries among children 14 years and younger result in permanent injury"[v]. Long-term care for an injured child will likely result in decreased family income as one caregiver stays at home instead of working. Many families are not able to pay the cost of care for an injured child, and turn to social welfare. According to the Arizona Department of Public Safety, every citizen of Arizona pays $580.00 a year for the cost of care for those injured in motor vehicle crashes through higher insurance rates, medical care costs and taxes[vi].

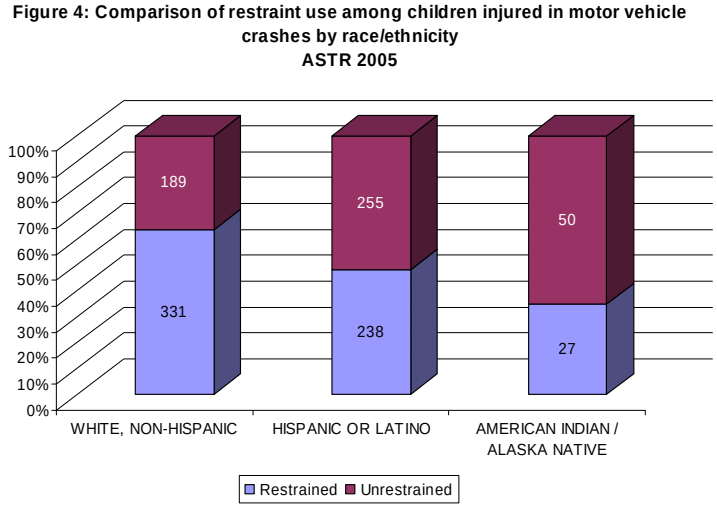
Figure 3

Figure 3: Length of Intensive Care Unit Stay ASTR 2005



The report from the ASTR shows a clear pattern in which Hispanic and American Indian children that have been injured in motor vehicle crashes are less likely to have been protected by appropriate restraint use. While the report did not evaluate the severity of injury by race/ethnicity, it is likely that these groups were correspondingly more seriously injured than White non-Hispanic children.

Figure 4



What can you do to keep children from dying in car crashes?

Every day children are injured in car crashes, and because many of these children are not appropriately restrained with car seats, booster seats or seat belts, they are more likely to die or be seriously injured. All parents and caregivers should attend a training program that provides instruction in the appropriate use of restraint systems. Reports from the National Highway Traffic Safety Administration find that even when children are using the appropriate form of restraint, 70% of the time, the restraint has not been applied appropriately[vii,viii]. Classes on how and when to use car seats, booster seats and lap/shoulder belts are available through hospitals, ambulance services and fire departments in locations across the state. For information on a training sight near you visit the website for the Arizona Governor's Office of Highway Safety (http://www.azgohs.state.az.us/) or in the Phoenix area call (602) 255-3216 and in the Tucson area call (520) 790-5124. Safe Kids USA also has information on their website about Arizona training centers (http://www.safekids.org/certification/).

Primary seat belt laws save lives.

According to the National Highway Traffic Safety Administration[ix], states with primary seat belt laws average 10% higher usage rates than states like Arizona which have secondary seat belt laws. A primary seat belt law requires law enforcement officials to ticket vehicle occupants if they are observed driving without the use of restraints. To be most effective, the law should be applied to all seating positions and specify the use of appropriate restraint (car seat, booster seat of lap/shoulder belt) for children. An added benefit of a primary seat belt law is that when parents buckle up it is more likely that children will be appropriately restrained[x]. Had such a law been in place in 2005, it would have prevented the deaths of dozens of children and countless many more would not have suffered serious injury.

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[i] http://www.azdhs.gov/phs/owch/pdf/cfr2006.pdf
[ii] http://www.nhtsa.dot.gov/people/injury/airbags/OccupantProtectionFacts/restraint.htm
[iii] The Journal of Trauma Injury, Infection and Critical Care. 2006;60:489-493
[iv] http://www.azdhs.gov/plan/crr/crrreports/docs/2005/allregions/ip/sumallregionscy2005ip.pdf
[v] Model Trauma System Planning and Evaluation, US Department of Health Resources and Services Administration, 2006, pp 4
[vi] http://www.azdps.gov/safety/seatbelts/default.asp
[vii] http://www.nhtsa.dot.gov/people/injury/research/TSF_MisuseChildRetraints/809851.html
[viii] http://www.nhtsa.dot.gov/people/injury/research/Misuse/pages/TRD.html
[ix] http://www.nhtsa.dot.gov/staticfiles/DOT/NHTSA/Communication%20&%20Consumer%20Information/Traffic%20Tech%20Publications/Associated%20Files/SafetyBeltLaws1.pdf
[x] http://www.nhtsa.dot.gov/people/injury/airbags/OccupantProtectionFacts/restraint.htm